



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,194	07/03/2003	Chandra Mouli	M4065.0933/P933	4126
24998	7590	08/24/2005		EXAMINER
DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP 2101 L Street, NW Washington, DC 20037			TRAN, TAN N	
			ART UNIT	PAPER NUMBER
			2826	

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/612,194	MOULI, CHANDRA <i>(initials)</i>	
	<b>Examiner</b>	<b>Art Unit</b>	2826
	TAN N. TRAN		

— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on amendment filed on 07/05/05.
- 2a) This action is **FINAL**.                          2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-12, 14-37, 39 and 60-69 is/are pending in the application.
  - 4a) Of the above claim(s) 15-19 is/are withdrawn from consideration.
- 5) Claim(s) 20-24 is/are allowed.
- 6) Claim(s) 1-4, 7, 11, 12, 14, 25-28, 31, 35, 36, 39, 60-69 is/are rejected.
- 7) Claim(s) 5, 6, 8-10, 29, 30 and 32-34 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

*Minhloan Tran*  
Minhloan Tran  
Primary Examiner  
Art Unit 2826

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    - a) All    b) Some \* c) None of:
      1. Certified copies of the priority documents have been received.
      2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
      3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____.                                   |

**DETAILED ACTION**

**Claim Rejections - 35 USC § 102**

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3,25-27,64,65,67,68 are rejected under 35 U.S.C. 102(b) as being anticipated by Sakuragi et al. (2001/0020909).

With regard to claims 1-3,25-27,64,65,67,68, Sakuragi et al. discloses a photo-conversion device 21 for producing photogenerated charges; and a circuit for producing an output signal from the photogenerated charges, the circuit comprising one transistor structure (22,23,24) having at least one reset transistor 23, at least one amplifier transistor structure 22 which servers a source follower transistor structure comprising: at least one gate 22A; and first and second source and drain lines (22B,22C) serve as the first and second leads respectively couple to regions formed in the amplifier transistor structure 22, wherein the at least one amplifier transistor structure 22 has at least two threshold voltages ( $V_{th}, V_A$ ) associated with at least one channel, and wherein an I-V characteristic of the amplifier transistor structure 22 is determined at least in part by the threshold voltages. (Note attachment #1, figs. 23,24 of Sakuragi et al.). It is inherent that the first and second leads respectively couple to source and drain regions formed in the amplifier transistor structure 22 wherein the source and drain regions forming on an opposite

side of the at least one channel region in order to perform the function of the amplifier transistor structure.

### **Claim Rejections - 35 USC § 103**

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4,7,11,12,14,28,31,35,36,39,60-63,66,69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakuragi et al. (2001/0020909).

With regard to claims 39,60, Sakuragi et al. discloses all the claimed subject matter as in claim 1 except for an image sensor coupled to the processor. However, it would have been obvious to one of ordinary skill in the art to form an image sensor coupled to the processor in order to perform the function of image sensor.

With regard to claims 4,28,61, it is inherent that Sakuragi et al. discloses the at least one transistor structure (83-1-1,83-1-2,83-1-3,82-1-1, or 82-1-2) comprises first, second, and third channel regions connected in parallel because fig. 3 of Sakuragi et al. is formed as an array of cells.

With regard to claims 7,31, Sakuragi et al. disclose all the claimed subject matter except for the at least one transistor structure comprises one channel region and wherein the channel region comprises a normal conduction path and at least one parasitic conduction path. However, it would have been obvious to one of ordinary skill in the art to form the at least one transistor structure comprises one channel region and wherein the channel region comprises a normal conduction path and at least one parasitic conduction path in order to stabilize a capacitance component.

With regard to claims 11,35, it is inherent that Sakuragi et al. discloses the at least one transistor structure having two or more gate oxide thickness because the transistor structure of Liu et al. having two or more transistors in order to form an array of cells. Sakuragi et al. discloses all the claimed subject matter except for the two or more threshold voltages result at least in part from the at least one transistor having two or more gate oxide thickness. However, in reference to the claim language referring to the function of the transistor structure having two or more gate oxide thickness, intended use and other types of functional language must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963).

With regard to claims 12,36 Sakuragi et al. disclose all the claimed subject matter except for a sub-threshold region and a linear region provide a same or similar amplification factor for a signal. However, it would have been obvious to one of ordinary skill in the art to form a sub-

threshold region and a linear region provide a same or similar amplification factor for a signal in order to achieve an efficiency of image sensors. Note figs. 6,7 of Koizumi et al. (2003/0137594) are cited to support for the well know position.

With regard to claim 14, Sakuragi et al. discloses all the claimed subject matter except for the photo-conversion device is a pinned photodiode. However, it would have been obvious to one of ordinary skill in the art to form the photo-conversion device is a pinned photodiode in order to transfer the photoelectric charges from the pinned photodiode to the floating region.

With regard to claims 62,63, Sakuragi et al. discloses all the claimed subject matter except for the first channel region corresponds to a first threshold voltage and the second and third channel regions correspond to second and third threshold voltages, respectively, or the second and third channel regions correspond to second threshold voltages and wherein the first, second and third threshold voltages are different from one another. However, it would have been obvious to one of ordinary skill in the art to form the first channel region corresponds to a first threshold voltage and the second and third channel regions correspond to second and third threshold voltages, respectively, or the second and third channel regions correspond to second threshold voltages and wherein the first, second and third threshold voltages are different from one another because such structure is conventional in the art for forming an array of cells in order to achieve the threshold voltage capable of maintaining a potential distribution.

With regard to claims 66,69, Sakuragi et al. discloses at least one of the at least one transistor structure 42 is a transfer transistor. (Note fig. 29 of Sakuragi et al.).

**Allowable Subject Matter**

3. Claims 5,6,8-10,29,30,32-34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 5,6,8-10,29,30,32-34 are allowable over the prior art of record, because none of these references disclose or can be combined to yield the claimed invention such as the first channel region corresponds to a first threshold voltage and the second and third channel regions correspond to second and third threshold voltages respectively, and wherein the first threshold voltage is higher than the second and third threshold voltages as recited in claims 5,29, the first channel region corresponds to a highest first threshold voltage and the second and third channel regions correspond to second threshold voltage and wherein the first threshold voltage is higher than the second threshold voltage as recited in claim 6,30, the normal conduction path is associated with a highest first threshold voltage and the at least one parasitic conduction path is associated with at least a second lower threshold voltage as recited in claims 8,32.

4. Claims 20-24 are allowable over the prior art of record, because none of these references disclose or can be combined to yield the claimed invention such as the normal conduction path is associated with a highest first threshold voltage as recited in claim 20.

**Response to Amendment**

5. Applicant's arguments with respect to claims 1,20,39 have been considered but are moot in view of the new ground(s) of rejection.

**Conclusion**

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Tan Tran whose telephone number is (571) 272-1923. The examiner can normally be reached on M-F 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272-1915. The fax phone numbers for the

Art Unit: 2826

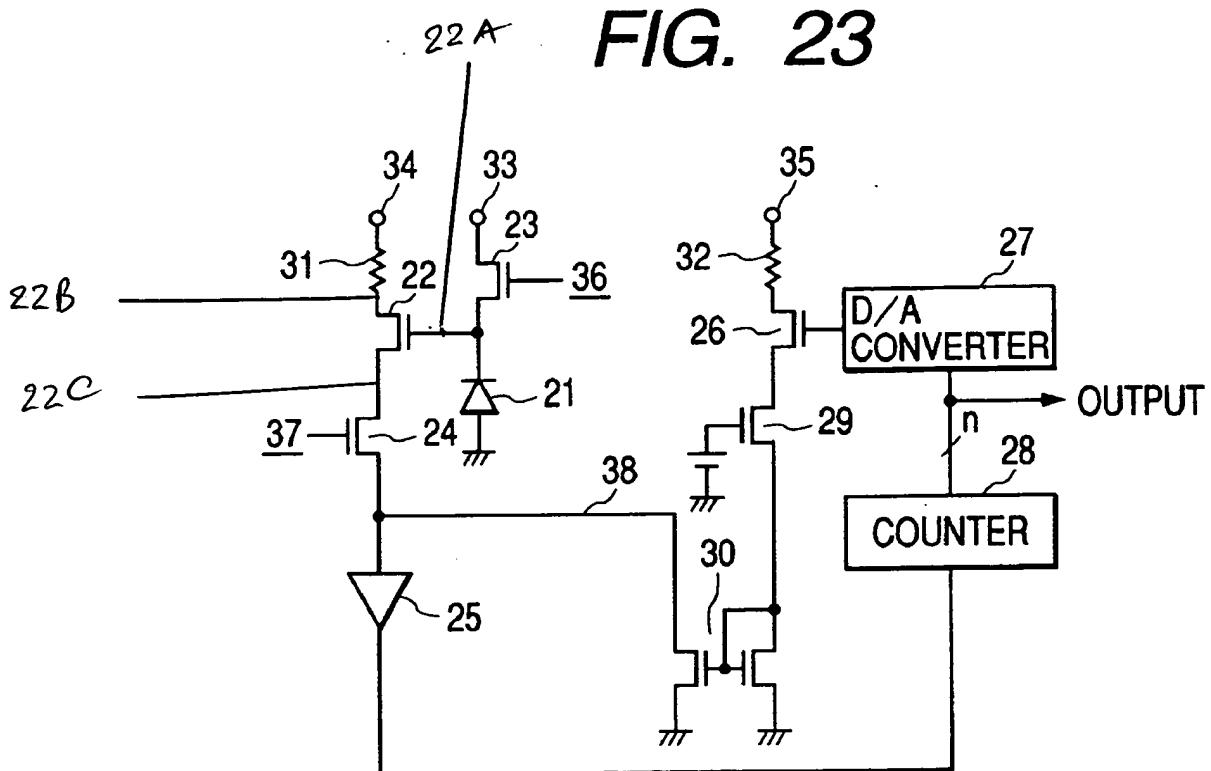
organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and (571) 273-8300 for after final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

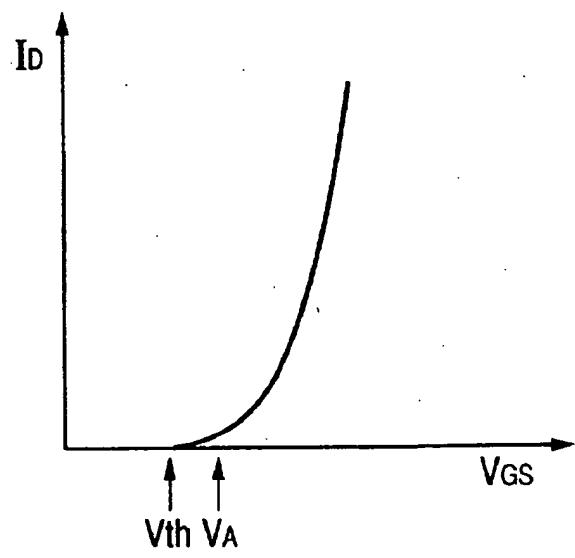
TT

August 2005

**FIG. 23**



**FIG. 24**



Attachment # 1